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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,100	05/19/2006	Kouji Waki	389.46211X00	5080

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ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

EXAMINER	
NGUYEN, HIEN NGOC	
ART UNIT	PAPER NUMBER
3777	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/580,100	WAKI ET AL.	
	Examiner	Art Unit	
	HIEN NGUYEN	3777	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 November 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5 and 7-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 7-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 May 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/23/2010*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

As Applicant notes, Examiner incorrectly indicated on the Office Action Summary that the prior action was a Final rejection. Examiner hereby confirms that the last rejection should have been indicated to be a non-final rejection.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 9 and 14 are rejected under 35 U.S.C. 102(a) as being anticipated by Lin (US 6,068,597).

3. Addressing claims 1, 9 and 14 Lin discloses an ultrasonic imaging apparatus comprising: an ultrasonic probe that receives and sends ultrasonic waves from/to an object (see Fig. 1, element 114, the ultrasound transducer); ultrasound image structuring unit configured to generate an ultrasound image on the basis of a reflected echo signal received by the ultrasonic probe (see Fig. 1, elements 136, 134, 132, 130,

these processors and scan converter receive echo signal and generate images); an elastic image structuring unit configured to obtain a strain or an elastic modulus of the elasticity of the object of a region corresponding to the ultrasound image on the basis of the reflected echo signal and generates a color elastic image (see col. 2, lines 40-49, col. 3, lines 13-43, Fig. 1, elements 136, 134, 132, 130, these processors and scan converter receive echo signal and generate elastic color images); a display configure to overlay the ultrasound image to the color elastic image, or arranges the ultrasound image and the color elastic image and displays the resultant image on a screen (see col. 2, line 9-col. 3, line 43, the color elastic is overlay the black and white image in order to differentiating tumors in soft organs such as the breast, prostate and liver); a setting unit configured to variably set a corresponding relationship between a hue of the color elastic image displayed on the screen and the level of the strain or elastic modulus (see col. 7, lines 47-col. 8, lines 11, claim 4, adjust color window to create accurate color image that enable viewer to differentiate tumor from soft tissue); a calculator configured to calculate an amount the strain or elastic modulus of the elasticity of the object of a region corresponding to the ultrasound image on the basis of the reflected echo signal (see col. 2, line 10-col. 3, line 43, the Doppler spectrometer provide information on elasticity which is the same as calculating the strain or elastic modulus); a color conversion table that is rewritable and set a relationship between the level of the strain or elastic modulus and the color of the color elastic image (see col. 8, lines 1-11, col. 9, lines 8-49, color mapping, look-up table are part of the color conversion table). A color image generator configured to read the color corresponding to the obtained strain

or elastic modulus from the conversion table and generates a color elastic image indicating the distribution of the strain or elastic modulus (see Fig. 8, elements 136, 138, col. 8, lines 1-11 and col. 9, lines 8-49, elements 136 and 138 have look-up table, color mapper, pixel encoder/interpolator and color frame buffer to create color elastic image); the color elastic image is displayed with a hue for a larger region or a smaller region in the strain or the elastic modulus than a preset amount of the strain or the elastic modulus (see col. 2, line 50-col. 3, line 10 and col. 4, line 14-18; elastic color image is based on the amplitude signal; examiner interprets the claim as color elastic image base on the measurement of strain or elastic modulus from the ultrasound signals). The system is capable of assigning the hue of the color elastic image so as to prevent the display from displaying a neutral portion in a color conversion table (see col. 9, lines 8-49 and Fig. 11; the operator could set the color mapping scheme; examiner interprets the claim according to applicant's specification paragraph [0059] and Fig. 7, the neutral region 33 between regions 31 and 32 is set to RBG/000 which is black; the operator is capable of setting the boundary region between two regions to be black).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 2-5, 7-8 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (US 6,068,597) and in view of Miga (US 2004/0234113).

6. Addressing claims 2-5, 7-8 and 10, Lin does not disclose an ultrasonic imaging apparatus that display on the screen with a color bar for a corresponding relationship between the hue of the color elastic image and the level of the strain or the elastic modulus. Miga discloses: an ultrasonic imaging apparatus that display on the screen with a color bar for a corresponding relationship between the hue of the color elastic image and the level of the strain and elastic modulus (see Fig. 2C, 3, 9D and 11). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lin's apparatus to display on the screen with a color bar taught by Miga because the color bar provide a visual corresponding relationship between the hue of the color elastic image and the level of a physical quantity.

7. Addressing claims 11-13, Lin discloses an ultrasonic imaging apparatus comprising: the strain or an elastic modulus calculated from the amount of motion of the tissue (see col. 2, line 10-col. 3, line 43, Fig. 4, col. 4, lines 52-67, vibrational color Doppler technique determine the strain or elastic modulus of the tissue from the amount of motion of the tissue cause by the vibration). Miga discloses a color bar indicating a correspondence between the hue of the color elastic image and the strain or the elastic modulus (see Figs. 2C, 3 and 9D); a character indicating the assignment of the

hardness of the color elastic image is displayed around the color bar (see Fig. 2C, the number next to color bar); wherein the color elastic image is displayed alternatively a larger region or a smaller region than the setting strain or elastic modulus with a set hue (Figs. 2C, 3, 9D and 11, in the figures there are larger and smaller region with different color hue).

Response to Arguments

Applicant's arguments filed 11/04/2010 fully considered but they are not persuasive. Applicant argues Lin does not generate a color image corresponding to the distribution of the strain or elastic modulus. Applicant's argument is not persuasive because the color image generate from vibrational resonance spectrum disclose the elasticity of tissue which is the same as distribution of strain and elastic modulus (see col. 2, lines 50-67). Applicant argues Lin does not disclose displaying the color elastic image with specific hue values corresponding to a relationship between the strain or elastic modulus that is measured to a preset amount. Applicant's argument is not persuasive because Lin display color mapping image corresponding to a relationship between the strain or elastic modulus that is measured to a preset amount (see col. 2, lines 50-col. 3, line 10 and col. 4, lines 14-17; Lin use vibrational spectrum to produce an image that show elasticity base on echo signals and this is the same as an image that show strain that is measured to a preset amount; mechanical property is a property that involves a relationship between stress and strain or a reaction to an applied force;

Lin use vibrational spectrum to obtain mechanical property/strain/elastic and produce a color image to show the result that enable viewer to easily distinguish different tissues which is the same as what the applicant is doing). Lin produces a color image base on vibration spectrum that corresponding to tissue elasticity/deformation that enable medical doctor to easily differentiate/detect tumor (hard region) in soft tissue. The amplitude of the signals indicates different elastic value and these different elastic values are map into different color and curve shape to enable medical doctor to easily detect hard region in soft tissue. Lin's apparatus essentially perform the same function and provide the same result as the claim invention.

Applicant argues Miga does not disclose calculating the strain or elastic modulus from the amount of motion of the tissue and displaying a color bar indicative of a correspondence between the hue of the color elastic image and the strain or the elastic modulus. Applicant argues Miga only disclose a distribution of Young's modulus. Applicant's argument is not persuasive because color image of tissue that shows distribution of Young's modulus is the same as color image of strain or elastic modulus from the amount of motion. Young's modulus is the measure of stiffness and elastic/deformation material.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HIEN NGUYEN whose telephone number is (571)270-7031. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Chen can be reached on (571) 272-3672. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. N./
Examiner, Art Unit 3777

/Tse Chen/
Supervisory Patent Examiner, Art Unit 3777